

**TESTIMONY OF
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**ON BEHALF OF THE
AMERICAN GAS ASSOCIATION**

**BEFORE THE
UNITED STATES SENATE
ENVIRONMENT AND PUBLIC WORKS COMMITTEE,
SUBCOMMITTEE ON CLEAN AIR, CLIMATE CHANGE
AND NUCLEAR SAFETY**

**HEARING ON
THE IMPACT OF ENVIRONMENTAL REGULATIONS
ON NATURAL GAS MARKETS**

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**Statement of Arthur E. Smith, Jr.
On Behalf of
The American Gas Association**

Introduction

Thank you for the opportunity to testify before the subcommittee. My name is Arthur E. Smith, Jr. and I am the Senior Vice President and Environmental Counsel at NiSource Inc. NiSource is headquartered in Merrillville, Indiana and we are engaged in virtually all phases of the natural gas and electricity businesses, serving 3.7 million customers from the Gulf Coast through the Midwest and New England. I am testifying today on behalf of the American Gas Association which represents 197 local energy utility companies that deliver natural gas to more than 56 million homes, businesses and industries throughout the United States. Natural gas meets one-fourth of the United States' energy needs and it is the fastest growing major energy source. As a result, adequate supplies of competitively priced natural gas are of critical importance to AGA and its member companies. Similarly, ample supplies of reasonably priced natural gas are of critical importance to the millions of consumers that AGA members serve. AGA speaks for those consumers as well as its member companies.

The natural gas industry is at a critical crossroads. Natural gas prices were relatively low and very stable for most of the 1980s and 1990s. Wholesale natural gas prices during this period tended to fluctuate around \$2 per million Btus (MMBtu). But the balance between supply and demand has been extremely tight since then, and even small changes in weather, economic activity or world energy trends have resulted in significant wholesale natural gas price fluctuations. Market conditions have changed significantly since the winter of 2000-2001. Today our industry no longer enjoys prodigious supply; rather, it treads a supply tightrope, bringing with it unpleasant and undesirable economic and political consequences—most importantly high prices and higher price volatility. Both consequences strain natural gas customers—residential, commercial, industrial and electricity generators.

As this subcommittee well knows, energy is the lifeblood of our economy. More than 65 million Americans rely upon natural gas to heat their homes, and high prices are a serious drain on their pocketbooks. High, volatile natural gas prices also put America at a competitive disadvantage, cause plant closings, and idle workers. Directly or indirectly, natural gas is critical to every American.

The consensus of forecasters is that natural gas demand will increase steadily over the next two decades. This demand growth will be driven by the electricity generation market, as natural gas has been the fuel of choice for over 90 percent of the new generation units constructed over roughly the past decade. In part, the dominance of

natural gas in this market is attributable to environmental regulations that promote the clean-burning characteristics of natural gas. The overall growth in gas usage will occur because natural gas is the most environmentally friendly fossil fuel and is an economic, reliable, and homegrown source of energy. It is in the national interest that natural gas be available to serve the demands of the market. The federal government must address these issues and take prompt and appropriate steps to ensure that the nation has adequate supplies of natural gas at reasonable prices.

Executive Summary

- Natural gas markets have been extremely tight for the past five years, with supply unable to keep pace with rising demand. New supply initiatives are crucial to correcting this imbalance, but demand side actions are also necessary, particularly with regard to the use of natural gas for electricity generation.
- Natural gas demand is projected to increase by 37 percent over the next 15 years, with over 70 percent of this increase attributable to electricity generation.
- Natural gas has been the fuel of choice for over 90 percent of the newly constructed generating units over the past decade. This dominance results from a number of factors, including the environmental attributes of gas that lead to lower capital costs and shorter construction lead times relative to other generating options.
- Public policy makers must consider both energy and environmental goals when developing regulations that impact electricity generation. That is, environmental goals must be achieved in concert with the pursuit of a greater diversity in the electricity generation mix.
- The construction of new generating units utilizing clean, highly efficient new technologies will be most successful in meeting dual energy and environmental goals. That is, technologies such as integrated gasification combined cycle (IGCC), nuclear energy, solar, wind and gas-based combined heat and power systems. These technologies must be actively encouraged and promoted.

Natural Gas Market Conditions

Stability in the natural gas marketplace is crucial to all of America for a number of reasons. It is imperative that the natural gas industry and the government work together to take significant action in the very near term to assure the continued economic growth, environmental protection, and national security of our nation. The tumultuous events in energy markets over the last several years serve to underscore the importance of adequate and reliable supplies of reasonably priced natural gas to consumers, to the economy, and to national security.

There has been a crescendo of public policy discussion with regard to natural gas markets since the “Perfect Storm” winter of 2000-2001, when tight supplies of natural gas collided with record-cold weather to yield record natural gas home-heating bills. The vulnerability of the natural gas market to weather was demonstrated again in the summer of 2005 when weather that was 18 percent warmer than normal pushed more gas into electricity generators to meet air conditioning demand, and yet again in September when multiple hurricanes in the Gulf of Mexico eliminated nearly 25 percent of our total gas supply. The hot summer pushed natural gas prices upward from the \$6.00 per MMBtu level to roughly \$8.00, the hurricanes resulted in prices that fluctuated between \$12.00 and \$14.00 per MMBtu, and a brief cold snap in December produced a price spike to roughly \$15.00 per MMBtu. Clearly, natural gas markets are higher and more volatile than at any point in history. Moreover, there is no sign that this market volatility will abate in the near future.

It is harmful to individual families and to the entire U.S. economy for natural gas prices to remain both high and volatile. Unless we make the proper public policy choices—and quickly—we will be facing many more difficult years with regard to natural gas prices. Of course, when families pay hundreds of dollars more to heat their homes, they have hundreds of dollars less to spend on other things. Many families are forced to make difficult decisions between paying the gas bill, buying a new car, or saving for future college educations. There are, of course, state and federal programs such as LIHEAP to assist the most needy. But LIHEAP only provides assistance to about 15 percent of those who are eligible, and it does not provide assistance to the average working family. These price increases have affected all families – those on fixed incomes, the working poor, lower-income groups, those living day to day, and those living comfortably.

The impact of unstable natural gas markets on U.S. businesses is equally disturbing. Since natural gas prices began rising in 2000, an estimated 78,000 jobs have been lost in the U.S. chemical industry, which is the nation’s largest industrial consumer of natural gas, both for the generation of electricity at manufacturing plants and as a raw material for making medicine, plastics, fertilizer and other products used each day. Similarly, fertilizer plants, where natural gas can represent 80 percent of the cost structure, have closed one facility after another. Glass manufacturers, which also use large amounts of natural gas, have reported earnings falling by 50 percent as a result of natural gas prices. In our industrial and commercial sector, competitiveness in world markets and jobs at home are on the line.

Natural Gas Demand Growth and Electricity Generation

In a study prepared for the American Gas Foundation in February of 2005, natural gas demand is projected to increase by 37 percent between 2003 and 2020 under a “most likely” energy scenario. Although higher natural gas prices may moderate some of this projected demand growth, including the growth in demand for gas-fired electricity generation, we believe the fundamentals of this document remain sound and the basic tenets are unchanged. Some of the findings of this report are summarized below.

About 4.2 quads of gas were consumed to generate electricity in 2003, 19 percent of total U.S. gas consumption. This market share is projected to increase to 27 percent by 2010 (6.8 quads) and to 33 percent (10.2 quads) by 2020. Thus, by 2020 electricity generators are expected to be the dominant sector in terms of gas demand, with consumption 32 percent greater than that of the industrial sector and 61 percent greater than that of the residential sector.

Today, natural gas is the source of about 18 percent of all electricity generated but this number is projected to increase to 26 percent by 2020. Conversely, 55 percent of all electricity generated today is coal-based but this percentage is projected to fall to 50 percent by the end of the forecast period.

Electricity generators have been choosing natural gas as a fuel source in recent years for a number of reasons – low capital cost, the ability to construct in a modular fashion, economical construction even for relatively small plants, ease of permitting and short construction lead times. In addition, natural gas is an environmentally preferable fuel. When compared to other options, gas offers benefits on a number of environmental fronts – acid rain, urban smog, visibility, mercury emissions, water consumption and solid waste production. Much of the natural gas-based generating capacity added did not face the environmental uncertainties associated with larger coal-based generation facilities. While natural gas usage for electricity generation is not required by environmental regulation, the environmental characteristics of gas combustion made permitting less complex in adding incremental electricity generating capacity. For example, pollution control equipment is often minimal or not required at all, thus capital costs and construction lead times are both reduced. Because natural gas combustion also emits significantly less carbon than coal or oil combustion, the gas-fired facilities added did not even have the level of “climate risk” associated with the other fuels as a result of their greenhouse gas emissions.

To date, energy and environmental regulations regarding electricity generating units have not been developed in a unified and consistent fashion. Public policy must seek to diversify the fuel sources used to generate electricity, thereby reducing upward price pressure on natural gas markets, while also reducing the environmental impacts of electricity generation. These dual goals will most likely be met through the construction of new and highly efficient generating technologies. For example, new coal-based IGCC (integrated gasification combined cycle) units, nuclear units, solar and wind-powered units, and natural gas-based CHP (combined heat and power) systems must play a role in the electricity generation future. Existing environmental policies often do not favor the construction of these new and novel generating options, rather they promote cleaning up existing sources that are often used in combination with low efficiency gas peaking turbines to meet increasing electricity demand.

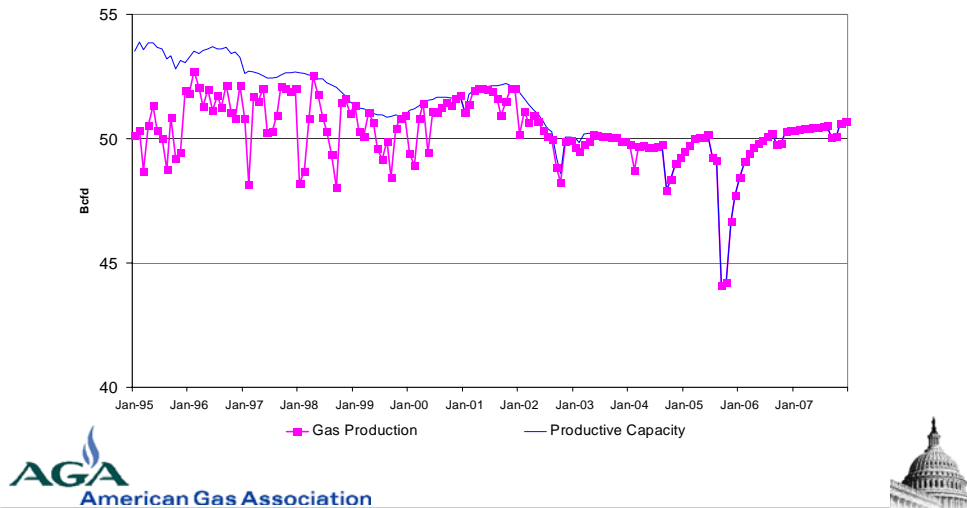
Natural Gas Supply

For the past five years, natural gas production has operated full-tilt to meet consumer demand. The “surplus deliverability” or “gas bubble” of the late 1980s and 1990s is simply gone, as illustrated in the graphic below that compare actual natural gas

production with production capability (prepared by Energy and Environmental Analysis).

Lower-48 Dry Gas Production vs. Dry Gas Productive Capacity

Source: Energy and Environmental Analysis, Inc.



No longer is demand met while unneeded production facilities sit idle. No longer can new demand be met by simply opening the valve a few turns. The valves have been, and presently are, wide open.

America has a large and diverse natural gas resource; producing it, however, can be a challenge. Providing the natural gas that the economy requires will necessitate: (1) providing incentives to bring the plentiful reserves of North American natural gas to production and, hence, to market; (2) making available for exploration and production the lands—particularly federal lands—where natural gas is already known to exist so gas can be produced on an economic and timely basis; (3) ensuring that the new infrastructure that will be needed to serve the market is in place in a timely and economic fashion.

The estimated natural gas resource base in the U.S. has actually increased over the last several decades. In fact, we now believe that we have more natural gas resources in the U.S. than we estimated twenty years ago, notwithstanding the production of approximately 300 trillion cubic feet of gas in the interim. This is true, in part, because new sources of gas, such as coalbed methane, have become an important part of the resource base. Nonetheless, having the natural gas resource is not the same as making natural gas available to consumers. That requires natural gas production.

Natural gas production is sustained and grows only by drilling in currently productive areas or by exploring in new areas. Over the past two decades a number of technological revolutions have swept across the industry. We are able today to drill for gas with dramatically greater success and with a significantly reduced environmental impact than we were able to do twenty years ago. We are also much more efficient in

producing the maximum amount of natural gas from a given area of land. A host of technological advances allows producers to identify and extract natural gas deeper, smarter, and more efficiently. For example, the drilling success rate for wells deeper than 15,000 feet has improved from 53 percent in 1988 to over 82 percent today. In addition, gas trapped in coal seams, tight sands, or shale is no longer out of reach, and today it provides a major source of supply.

While further improvements in this regard can be expected, they will not be sufficient to meet growing demand unless they are coupled with other measures. Regrettably, technology alone cannot indefinitely extend the production life of mature producing areas. New areas and sources of gas will be necessary.

Notwithstanding the dramatic impact of innovation upon the natural gas business, the inevitable fact today is that we have reached a point of rapidly diminishing returns with many existing natural gas fields. This is almost entirely a product of the laws of petroleum geology. The first ten wells in a field may ultimately produce 60 percent of the gas in that field; yet it may take forty more wells to produce the balance. In many of the natural gas fields in America today, we are long past those first ten wells and are well into those forty wells in the field. In other words, the low-hanging fruit have already been picked in the orchards that are open for business.

Drilling activity in the U.S. has moved over time, from onshore Kansas, Oklahoma and Arkansas to offshore Texas and Louisiana, and then to the Rocky Mountains. Historically, we have been quite dependent on fields in the Gulf of Mexico. But recent production declines in the shallow waters of the Gulf of Mexico have necessitated migration of activity to deeper waters to offset this decline. These newer, more expensive, deepwater fields tend to have short lives and significantly more rapid rates of decline in production than onshore wells.

The sobering reality is that America's producers are drilling more wells today than they were five years ago. Nevertheless, domestic supply is struggling to be sustained. U.S. gas producers are on an accelerating treadmill, running harder just trying to stay in place. For reasons that are partly due to technology, and partly due to the maturing of the *accessible* natural gas resource base, a typical well drilled today will decline at a faster rate than a typical well drilled a decade ago. Moreover, because up to half of this country's current natural gas supply is coming from wells that have been drilled in the past five years, this decline trend is likely to continue.

Before we can meet growing gas demand, we must first replace the perennial decline in production. The U.S. natural gas decline rate will be in the range of 26-28 % this year. In practical terms, if all drilling stopped today, in twelve months U.S. natural gas production would be 26-28% lower than it is today. The accelerating decline rate helps explain why U.S. gas deliverability has been stuck in the 52-54 billion cubic feet per day range for the past eight years, notwithstanding an increase in gas-directed drilling.

In short, America's natural gas fields are mature—in fact many are well into their golden years. There is no new technology on the horizon that will permit us to pull a rabbit out of a hat in these fields. These simple and incontrovertible facts explain why we are today walking a supply tightrope. High and volatile natural gas prices have become the norm and will become increasingly accentuated as the economy returns to its full vigor. There is no question that high and volatile natural gas prices are putting a brake on the economy, once again causing lost output, idle productive capacity, and lost jobs.

If we are to continue to meet the energy demands of America and its citizens and if we are to meet the demands that will they make upon us in the next two decades, we must change course. It will not be enough to make a slight adjustment or to wait three or four more years to make necessary policy changes. Rather, we must change course entirely, and we must do it in the very near future. Lead times are long in our business, and meeting demand years down the road requires that we begin work today.

We have several reasonable and practical options. It is clear that continuing to do what we have been doing is simply not enough. In the longer term we have a number of options:

First, and most importantly, we must work to sustain and increase natural gas production by looking to new frontiers within the United States. Further growth in production from this resource base is jeopardized by limitations currently placed on access to it. For example, most of the gas resource base off the East and West Coasts of the U.S. and the Eastern Gulf of Mexico is currently closed to any exploration and production activity. Moreover, access to large portions of the Rocky Mountains is severely restricted. The potential for increased production of natural gas is severely constrained so long as these restrictions remain in place.

To be direct, America is not running out of natural gas, and it is not running out of places to look for natural gas. America is running out of places where we are *allowed* to look for gas. The truth that must be confronted now is that, as a matter of policy, this country has chosen *not* to develop much of its natural gas resource base. We doubt that that many of the 65 million American households that depend on natural gas for heat are aware that this choice has been made on their behalf.

In this vein, the Rocky Mountain region is expected to be a growing supplier of natural gas, but only if access to key prospects is not unduly impeded by stipulations and restrictions. Two separate studies by the National Petroleum Council and the U.S. Department of the Interior reached a similar conclusion—that nearly 40 percent of the gas resource base in the Rockies is restricted from development, in some cases partially and in some cases totally. On this issue, the Department of the Interior noted that there are nearly 1,000 different stipulations that can impede resource development on federal lands.

One of the most significant new gas discoveries in North America in the past ten years is located just north of the US/Canada border in eastern Canadian coastal waters on the Scotian shelf. Natural gas discoveries have been made at Sable Island and Deep Panuke. Gas production from Sable Island already serves Canada's Maritimes Provinces and New England through an offshore and land-based pipeline system. This has been done with positive economic benefits to the region and without environmental degradation. This experience provides an important example for the United States, where we believe that the offshore Atlantic area has a similar geology.

In some areas we appear to be marching backward. The buy-back of federal leases where discoveries had already been made in the Destin Dome area (offshore Florida) of the eastern Gulf of Mexico was a serious step backward in terms of satisfying consumer gas demand. This action was contrary to what needs to be done to meet America's energy needs. With Destin Dome we did not come full about, as we need to do; rather, we ran from the storm.

Geographic expansion of gas exploration and drilling activity has for the entirety of the last century been essential to sustaining growth in natural gas production. Future migration, to new frontiers and to new fields, in both the U.S. and Canada, will also be critical. Without production from geographic areas that are currently subject to access restrictions, it is not at all likely that producers will be able to continue to provide increased amounts of natural gas from the lower-48 states to customers for longer than 10 or 15 years. We believe that the same is true in Canada as well.

It is imperative that energy needs be balanced with environmental impacts and that this evaluation be complete and up-to-date. There is no doubt that growing usage of natural gas harmonizes both objectives. Finding and producing natural gas is accomplished today through sophisticated technologies and methodologies that are cleaner, more efficient, and much more environmentally sound than those used in the 1970s. It is unfortunate that many restrictions on natural gas production have simply not taken account of the important technological developments of the preceding thirty years. The result has been policies that deter and forestall increased usage of natural gas.

Second, we need to increase our focus on non-traditional sources, such as liquefied natural gas (LNG). Reliance upon LNG has been modest to date, but it is clear that increases will be necessary to meet growing market demand. Today, roughly 97 percent of U.S. gas supply comes from traditional land-based and offshore supply areas in North America. Despite this fact, during the next two decades, non-traditional supply sources such as LNG will likely account for a significantly larger share of the supply mix. LNG has become increasingly economic. It is a commonly used worldwide technology that allows natural gas produced in one part of the world to be liquefied through a chilling process, transported via tanker, and then re-gasified and injected into the pipeline system of the receiving country. Although LNG currently supplies less than 3 percent of the gas consumed in the U.S., it represents 100 percent of the gas consumed in Japan.

LNG has proven to be safe, economical and consistent with environmental quality. Due to constraints on other forms of gas supply and increasingly favorable LNG economics, LNG is likely to be a more significant contributor to US gas markets in the future. It will certainly not be as large a contributor as imported oil (nearly 60 percent of US oil consumption), but it could account for 15-20 percent of domestic gas consumption 15-20 years from now if pursued aggressively and if impediments are reduced.

It is unlikely that LNG can solve the entirety of our problem. A score of new LNG import terminals have been proposed, some with capacities in excess of 2.5 billion cubic feet per day. However, given the intense “not on our beach” opposition to siting new LNG terminals, a major supply impact from LNG may be a tall order indeed.

Third, we must tap the huge potential of Alaska. Alaska is estimated to contain more than 250 trillion cubic feet of natural gas—enough by itself to satisfy US gas demand for more than a decade. Authorizations were granted twenty-five years ago to move gas from the North Slope to the Lower-48, yet no gas is flowing today nor is any transportation system under construction. Indeed, every day the North Slope produces approximately 8 billion cubic feet of natural gas that is re-injected because it has no way to market. Alaskan gas has the potential to be the single largest source of price and price volatility relief for US gas consumers. Deliveries from the North Slope would not only put downward pressure on gas prices, but they would also spur the development of other gas sources in the state as well as in northern Canada.

Fourth, we can look to our neighbors to the north. Canadian gas supply has grown dramatically over the last decade in terms of the portion of the U.S. market that it has captured. At present, Canada supplies approximately 14 percent of the United States’ needs. We should continue to rely upon Canadian gas, but it may not be realistic to expect the U.S. market share for Canadian gas to continue to grow as it has in the past or to rely upon Canadian new frontier gas to meet the bulk of the increased demand that lies ahead for the United States.

The pipelines under consideration today from the Prudhoe Bay area of Alaska and the Mackenzie Delta area of Canada are at least 5-10 years from reality. They are certainly facilities that will be necessary to broaden our national gas supply portfolio. We must recognize, however, that together they might eventually deliver up to 8 billion cubic feet per day to the lower 48 States—less than 10% of the natural gas envisioned for the 2025 market.

There is much talk today of the need for LNG, Alaska gas, and Canadian gas. There is no question that we need to pursue those supplies to meet both our current and future needs. Nonetheless, it is equally clear that, in order to meet the needs of the continental United States, we will need to continue to look to the lower 48 States.